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THE EXAMINATION SYSTEM.

The petition, now under consideration, which has been signed by 94 Scotch veterinary students, and sent to the Council, is a very important one. Presumably it represents the feeling of the great bulk of Scotch students, and possibly also of English and Irish ones; it will probably be found that it has the support of some teachers; and the two changes in the examination system which it urges are radical ones.

The first of the proposed changes is to allow a student who, while failing to pass his examination, has obtained high marks in some subject or subjects, to be exempted from re-examination in the latter. At first sight there seems much to be said for thus leaving a student who has done really well in every subject except one free to concentrate himself upon his weak point. But it is by no means sure that the change, if effected, would tend to render the student's training more thorough, though it might facilitate the passing of examinations.

The argument advanced by the petitioners—the citation of the "possible if extreme case" of a student obtaining the highest possible marks in two subjects and failing by one mark in a third—is by no means convincing. It is admittedly an imaginary example; the actual marks which were gained in half-a-dozen cases of supposed hardship would be more to the purpose. But if we accept this hypothetical instance as a basis for argument, is it conceivable that a student who has only just failed to satisfy the examiners in one subject, and been found absolutely perfect in all the rest, is hardly treated by being obliged to maintain a pass standard in the latter, while gaining the small additional knowledge necessary for success in the former? We think not. We suggest that such a student, if he employed the time between his failure and re-examination wisely, would probably astonish the examiners by the brilliance of his examination, and also retain much more knowledge of his "strong subjects" in after life than if he were allowed to pass the examination piecemeal. The matter will come up at the next Council meeting, and in the meantime some advocates of the proposed alteration may publicly argue in its favour. While remaining open to conviction, we think that any such division of the examination requires to be supported by arguments stronger than those contained in the petition.

The second proposed change would require a new Charter, and therefore is not likely to go forward for the present. To appoint teachers as internal examiners is certainly a theoretically ideal scheme; but theoretically ideal schemes have a knack of breaking down lamentably in practice, and we—having a superabundance of schools, each anxious for a good pass list—should do well to leave this one untried.

FRACTURED TIBIA IN A FOAL—RECOVERY.

By C. W. TOWNSEND, F.R.C.V.S.

In the spring of last year I was called to attend a bay Shire filly about six weeks old, which I was informed had fractured her hind leg. This information I found was correct, for examination at once showed I had a complete fracture of the tibia to deal with, the fracture being situated almost midway between the hock and the stifle. Although at the time I thought the case hardly worth treating, yet, because the owner was very anxious for me to try, I decided to carry out his wishes.

I accordingly had the foal cast as carefully as possible. Having enveloped the limb from above the stifle to below the hock in thick cotton wool, I applied some Burgess' plaster bandages. Over the latter I fixed two wooden splints, one on each side of the limb, these also extending from the stifle to below the hock, and as far as possible cut to the shape of the leg when in a standing position. The splints also were kept in position by plaster bandages. After treatment simply consisted in keeping the mare and foal in a roomy loose box, with sawdust as a bedding material.

I occasionally saw the foal during the following six weeks, but by the end of the third week one could easily see that the animal was showing great improvement, as more weight was from time to time being placed upon the fractured limb.

At the end of a month I removed the splints, but still kept the bandages and cotton wool upon the limb, which latter I removed towards the end of the sixth week from the time the fracture took place. Examination now showed that the fracture had completely united, and the only evidence that such had ever existed was a thickening at the seat of the fracture, atrophy of the muscles of the quarter and thigh, also a granulating wound on the outside of the hock joint, the latter being due to pressure by the splint. These complications, however, rapidly disappeared, and it would now be difficult

for an ordinary observer to detect that a fracture had ever existed.

I record the case simply to show what results may possibly be obtained in the treatment of fracture in young animals. No doubt in this particular case, if this animal had not been valuable no treatment would have been tried.

ANTIMONY AND PIGS.

Pig-owners in this district use Black Antimony combined with Black Sulphur as an alterative and condition powder. Can any practitioner inform me whether cases of poisoning arise from the indiscriminate and excessive use of these drugs, and if so what are the symptoms and post-mortem lesions. In a suspected case of this poisoning which I investigated lately the lesions found were slight broncho-pneumonia, endocarditis, and the presence of a large quanity of black material in the stomach.

The owner considered the pig was dull and off colour, and drenched him with the drugs in question. On asking what dose of each she usually gave, the owner showed me a quantity of Black Antimony which would weigh 1½ to 2 drachms.

The post-mortem was made fully 24 hours after death and there were no signs of decomposition, although the weather had been very sultry.

If any reader will give his experience of this salt of antimony, its actions, and when its use is indicated, the writer will be greatly obliged. It seems to me that we have still to work out the posology of this drug.

W. J. Young.

Sheffield.

ABSTRACTS FROM FOREIGN JOURNALS.

Colibacillosis or Diarrhœa of Young Animals.

Van der Heyden, of Esschen, has been investigating this disease, regarding the ætiology of which he shares the view of Poels. The latter investigator, in 1899, published the results of observations and researches upon more than 120 calves, from which he concluded that their diarrhœa is not a specific morbid entity but a symptom common to various affections which differ essentially ætiologically. The principal infective agent encountered by Poels, however, was the virulent coli bacillus; and from this fact the name of *colibacillosis* has been given to contagious diarrhœa.

The virulent coli bacillus does not differ morphologically from the saprophytic colic bacillus which is always met with in the intestine; and it may be that it is the same organism which, under the influence of special conditions, has become virulent. Coli bacilli develope very rapidly at body temperature, rendering bouillon completely turbid after six or eight hours of incubation. They grow very well upon most culture media, but with difficulty upon acid media. They secrete very dangerous toxins.

Coli bacilli are not everywhere identical, but occur in numerous strains or varieties which, though presenting similar morphological and cultural characters, may differ in other respects. The same serum, for instance, when tested upon coli bacilli proceeding from different farms, may cause very different degrees of agglutination.

The various strains of coli bacilli are among the most widely distributed in nature of all germs. Their great facility of reproduction—they develope very well at from 59 F. to 60·8 F.—contributes to this. They are motile, and this facilitates infection.

Van der Heyden dwells at some length upon the methods of infection. Infection by the umbilicus is recognised as very common; and the author points out that rupture of the umbilical cord is not an essential preliminary to this. The periphery of the umbilical cord, being composed of young cells, has little resistant capacity, and thus favours infection. Again, Poels has proved that virulent coli bacilli are very often found in the excrements of cows, and that they often invade the vagina, and may collect in considerable numbers in the mucus which normally covers its walls. Umbilical infection during the act of parturition, as the umbilicus passes through the vagina, is therefore possible. Moreover, Van der Heyden points out that infection of the umbilicus from a contaminated vagina is also possible before the actual birth, after the rupture of the fætal membranes. The movements of aspiration towards the interior of the uterus which are produced after each labour pain may result in fluid from the vagina containing coli bacilli being sucked into the allantoidal cavity, and thus cause umbilical infection.

Van der Heyden, however, considers that infection by the *alimentary* tract is quite as important as that by the umbilicus. He states that infection by this channel, also, may take place before birth. Post-mortem examination of newly-born calves which have died or been destroyed before drinking shows that the rumen, reticulum, and omasum are of very small size, while the abomasum has a development at least equal to that of the other three stomachs combined. It contains a viscid liquid, which completely resembles the amniotic fluid, and is, in fact, proved to be such by the almost constant presence in it of numerous hairs, which can only proceed from the skin of the fœtus. If the fœtus before birth, then, ingests a portion of the amniotic liquid, it is not surprising that with this it should ingest virulent coli bacilli proceeding from the maternal vagina. These coli bacilli pass directly into the abomasum, where they encounter conditions eminently favourable to their rapid increase. The contents and the walls of the abomasum do not give an acid reaction, but a neutral or slightly alkaline one; the explanation of this fact is that the glands of the stomach have not yet commenced their functions. The bacilli therefore grow luxuriantly, and in a very short time their colonies penetrate into the small intestine.

Ante-partum infection, therefore, is quite possible either by the mouth or by the umbilicus. In addition there are very numerous opportunities for infection by both methods after birth in contaminated places, from the bacilli in the litter, on the ground, and elsewhere.

The author recommends preventive measures which comprehend all these different methods of ante-partum and post-partum infection. In the first place, he agrees with Poels in advising washing of the anus, vulva, and udder of parturient cows with a 3 per cent. solution of creolin, and also advises disinfection of the vagina. For the latter purpose he prefers 1 in 5000 solution of corrosive sublimate, which may be applied by means of a suitable sponge or soft brush, or by irrigation. By this means the mucous membrane of the vagina ean be rendered completely sterile.

Clean straw, ligation of the umbilical cord, and antiseptic dressing of the stump, are of course advocated. For dressing the stump, the author prefers a 5 per cent. solution of potassium permanagate, on account of its dessicant action,

To avoid infection after birth by the digestive tract, he recommends muzzling the calf with a small wicker basket fixed over the nose and mouth. This prevents the calf from either licking itself or ingesting contaminated material from the litter or the ground. Finally, to obtain acidity of the stomach and the first portion of the small intestine, the author recommends that the calf should drink immediately after birth, thus stimulating the digestive secretions and bringing the glands into full activity. The administration of colostrum has the additional advantage of securing the speediest possible elimination of the meconium, which is an extremely favourable medium for the development of the coli bacilli.

The therapeutical treatment of the affection is dismissed by the author in a few words, as being far from satisfactory. Many specialities are recommended, all having tannin, bismuth, or other astringents as a basis; but the action of these is evidently only very relative.

Of late years serum treatment has been employed against coli bacillosis. The serum, however, is difficult and tedious to prepare. Owing to the great toxicity of cultures of the coli bacillus, it is necessary to commence by injecting the animal which is to furnish the serum with minimum doses of dead bacilli, and to repeat this, and afterwards advance to the injection of virulent cultures very cautiously. Moreover, the number of varieties of coli bacilli renders it necessary, in order to prepare a serum of practical utility, that the animal providing the serum should be immunised with many different strains of bacilli. According to Jensen, at least a dozen strains should be used. The preparation of a serum of this degree of polyvalency requires more than a year, and its price is therefore high.

Anti-diarrhœic serum has been employed successfully in Holland and Germany; and Van der Heyden has prepared a serum on similar lines for use in Belgium. Fourteen different strains of coli bacilli have entered into its preparation, eleven of these having been supplied from Rotterdam by Poels, while the other three were collected by Van der Heyden himself in Belgium.

Nineteen practitioners who have used this serum have sent in returns of its results, which Van der Heyden now publishes. In no case, however, has the serum been employed very extensively; and most of the individual returns relate to only a few doses.

The serum has been employed both as a preventive and a curative, and upon both calves and foals. As far as foals are concerned, however, the observations have been far too few to permit any conclusion to be drawn from their results. With regard to the calves, the serum has given distinctly contradictory results both when used as a preventive and as a curative. On some farms the results have been good, on others completely negative. Altogether eighteen practitioners have employed the serum upon calves; and of these four have only had negative results, five have had sometimes negative and sometimes positive results, and nine have only had positive results.

Van der Heyden admits these results to be far from perfect, but regards them as favourable for the time being; and he points out various factors which may have brought about the failures. One of these possible factors is that the serum may have been used too late; another is absence of hygienic precautions. A third is that the farms upon which the serum failed may have been infected by a strain of coli bacilli not included in the serum; and, indeed, one such "new" strain was forwarded to Van der Heyden by a practitioner using the serum. Finally, there is the possibility of an outbreak of diarrhœa being caused by other organisms than coli bacilli; and these cases are certainly not rare. Only three post-mortem specimens were sent to Van der Heyden by practitioners using the serum; and of these only one was a case of coli bacillosis. Of the other two, one was a case of hæmorrhagic septicæmia, and the other a mixed infection of the coli bacillus and a very short and excessively virulent streptococcus.

Poels, in his work of 1899, states that in addition to the diarrhœic affections due to virulent coli bacilli, there are others with an almost identical symptomatology which are due either to *paracoli* bacilli, to streptococci, or to a mixed infection. These latter affections appear to be much less common than coli bacillosis, but nevertheless their frequence in Belgium is not yet known with certainty.

The paracoli bacillus presents much analogy with the coli bacillus, but differs essentially from it in its effect upon milk. The coli bacillus coagulates milk; the paracoli bacillus does not.

Van der Heyden proposes to include some strains of paracoli bacilli which he has obtained from Rotterdam in his polyvalent serum, and is also adding new strains of coli bacilli to it as occasion permits.—*Annales de Méd. Vét.*

W. R. C.

Cape of Good Hope. Report of the Chief Veterinary Surgeon for the year 1909.

[Abstract].

Staff.—The following is the list of the 18 Assistant Veterinary Surgeons at present serving on the Technical Staff:

R. W. Dixon	Cape Town. (On special duty in Transkeian Territories)
M. A. Hutchence	Kokstad.
G. W. Freer	Uitenhage.
J. Spruell	Somerset East. (At Umzimkulu on East Coast Fever duty.)
J. A. Robinson	East London.
A. Goodall	Worcester. (At Bizana on East Coast Fever duty.)
C. Goundry	Aliwal North.
J. H. Lyons	Grahamstown.
W. G. Pakeman	Queenstown.
S. Elley	Oudtshoorn.
R. Paine	Elsenberg Agric. Coll., Mulder's Vlei.
P. X. Kearney	Umtata.
W. Simson	Vryburg.
W. Jowett	Cape Town.
J. A. Worsley	Butterworth.
C. S. Elphick	Cape Town.

Joined Staff in December, 1909:—

R. P. Jones	Butterworth.
A. Matthew	Cape Town.

Status of Veterinary Staff.

With regard to the status of the professional officers of the staff, no improvement has as yet been made since last year. In my report for that year I pointed out that zealous officers were offered no reward for the interest shown in their work, and that there was no inducement for any officer to do more than his actual duty. The last six years have had the effect of placing our Veterinary Officers in a very poor position compared with officers holding similar positions in the other Colonies, and I trust that before Union takes place, Government may recognise the good work done and will see that our officers receive some tangible reward for the past six years' work.

Anthrax.—More than double the number of outbreaks and deaths from this disease were reported during the year as compared with 1908, part of this apparent increase being probably due to stockowners taking more serious notice of the disease and reporting outbreaks. The undoubted success of preventive inoculation against this disease and the easy method of inoculating should induce stockowners, for their own interests, to make more use of it. During the year 13,515 doses of anthrax vaccine were issued.

Veterinary Surgeon Simson, Vryburg, reports:—"Very few cases were brought to my notice. All being horses affected with large swellings on abdomen, sheath, etc., but all recovered. Owners generally inoculate if horses running on infected farms with satisfactory results."

Epizootic Lymphangitis.—This disease was met with only in the district of Humansdorp during the year, and stringent measures having been adopted it is hoped that the disease will not make its re-appearance in that locality. I am fully convinced that immediate slaughter of all infected animals is the most economical method of dealing with the disease.

Glanders.—The eradication of this disease is proceeding satisfactorily, and now that the compulsory malleining of all in-contacts and destruction of infected animals has been extended to the Transkeian Territories, a nearer approach to the total eradication may be looked for. The large towns remain practically free from this disease, cases only being found in horses and mules brought in from the country for sale; the discovery of these cases enable us to locate and deal with the centres of disease in the country.

One case of deliberate concealment of the disease in Cape Town was punished by the Magistrate by an exemplary fine, with the result that owners and dealers now report suspicious cases, and this office is consequently in a much better position to take prompt action as the fine alluded to has shown people, more especially dealers, that infringement of the regulations does not pay.

Veterinary Surgeon Elley, Oudtshoorn, reports:—"I must regret that after being free from this disease within my area during 1908, I should have to report eight outbreaks, involving twenty-nine horses for the year just ended.

"At least four or five of these outbreaks were directly traceable to the one source of infection; in fact it is possible that were the chain of evidence complete, every one of the eight outbreaks might be traced to infection conveyed by the same pair of diseased horses, affording another example, were examples needed, of the harm which may be done through the carelessness of an individual, particularly one whose business necessitates a considerable amount of cart travelling."

Veterinary Surgery Kearney, Umtata, reports:—"This disease, according to my observations, during the past year showed no increase, and in those cases where it did occur I had no difficulty in shooting the affected animal, with the owner's consent, and applying the mallein test to the incontact horse."

Lungsickness.—The position in regard to this disease, more especially in the Native Territories, is most encouraging. During the year 1909 there were only 423 outbreaks as compared with 665 in 1908 and 700 in 1907. The number of outbreaks under quarantine on the 31st December, 1909, was 123 as against 282 on the corresponding date in 1908. It is confidently expected that the enforcement of compulsory slaughter of infected animals which comes into force in the Transkeian Territories in 1910 will have a most beneficial effect. Since the first of September last no transport cattle have been allowed to enter the Colony from the Transkeian Territories or *vice versa*, without being previously inoculated against lungsickness, and all such cattle being branded with a distinctive mark. Some 52,000 odd cattle were inoculated and branded, and it is noteworthy that from July, in which month this inoculation started, the number of outbreaks suddenly decreased by about one half, and this rate of decrease was kept up to the end of the year. In all, some 93,000 cattle were inoculated against this disease, 41,000 being animals that had been in contact with lungsick beasts.

As was the case last year, the only districts in the Colony proper which are affected with lungsickness are those districts which either border on the Transkeian Territories or which have constant direct ox transport communication with the Territories.

Veterinary Surgeon Robinson (East London) reports:—"Lungsickness has considerably decreased during the year, although the number of outbreaks in existence at the present time is larger than could be desired. Several of these outbreaks are indirectly due to the inoculation carried out under Proclamation 301 of 1909. There are as a matter of course many animals recovered from lungsickness at work in transport teams, and in some of these cases re-inoculation had the effect of giving a fresh impetus to the dormant disease, with the result that the animal developed lungsickness again, and on post-mortem the different stages of the malady were plainly seen. Fortunately under these circumstances there was little tendency for the disease to spread, as most of the in-contact animals had already been inoculated. I have

never previously seen lungsickness produced in this manner, and it may in some degree account for the idea prevailing amongst stock owners that it can arise by infection from inoculated cattle, and as a case as just described might easily give rise to that impression unless the conditions were thoroughly understood. Notwithstanding this slight drawback I feel sure that the reinoculation of transport cattle combined with the proclamation of Act 16 of 1906 in the Native Territories, cannot fail shortly to have an appreciable effect in reducing the amount of lungsickness in the Border districts of the Colony. In portions of the King William's Town Division (particularly in Wards 1 and 2, which are entirely native areas) lungsickness seems to be endemic, but I am of opinion that a little more energy on the part of the Field Cornets concerned would lead to an improved condition of affairs. I must, however, admit that it is very difficult for a Field Cornet who is dependent on the goodwill of natives in business or other ways, to carry on his duties satisfactorily where the destruction of cattle is involved.

The results of inoculation with virus supplied from Butterworth have been excellent, and I am under obligation to the officer stationed there for the manner in which he has complied with my requests for this material. By the better class of stockowners the efficacy of stamping out is fully recognised, but amongst natives outbreaks are usually not reported until one or two animals have died, and the disease has consequently got a good hold in the herd. Many affected cattle not showing very pronounced symptoms are allowed to recover, and this is no doubt accountable for the recurrence of the disease at too frequent intervals in some areas."

Veterinary Surgeon Worsley (Butterworth) reports:—"The principal cause of the outbreaks is still cattle being brought in from other districts and the system of "lobola" or dowry cattle. When a native fancies he has the disease, or his cattle look sick, he becomes very generous, and distributes them all round, paying off old debts, or buys a new wife, thus the disease is spread."

Veterinary Surgeon Kearney (Umtata) reports:—"The work has been mainly in connection with lungsickness and its eradication, and I am pleased to be able to state that I consider the results of the compulsory inoculation to be very good; indeed I think they are even better than would appear, because when outbreaks occur, which are now comparatively few, only one or two beasts contract the disease; and even in these cases, perhaps unfortunately, they mostly recover. For this reason we have had great difficulty in procuring virus. There has been no trouble with the branding of transport oxen after inoculation."

Quarter-Evil (Sponsziekte). I regret to say that this disease has been extremely prevalent during the year, animals of all ages becoming attacked. Although the veterinary staff throughout the Colony and Transkeian Territories have urged the necessity of protective inoculation and demonstrated the method, it is somewhat disappointing that comparatively so little inoculation is done. As the majority of losses from this disease occur amongst young stock the natural increase is enormously retarded, and if stock-owners remain apathetic with regard to this disease, the time is not far distant when compulsory inoculation will have to be enforced. The more enlightened farmers are, however, already inoculating their young stock, and signs are not wanting that the Natives are also beginning to recognise the necessity of protecting their stock against this disease; the educative process is, however, extremely slow.

Veterinary Surgeon Spreull (Umzimkulu) reports:—"Sponsziekte is by far the most prevalent disease in these parts. The calf mortality from this disease in the locations must be very heavy at times. The natives seem to consider the disease of little moment, and its ravages quite in the natural state of things. In the past I am convinced it has seldom been reported, and even now we have but a poor idea of what losses it has occasioned within the district. I gather from the white farmers that they have until recently suffered very little from this disease, but within the last year or two one or two have made a start with inoculation as a preventive when an unusually severe outbreak occurred. The natives, however, confined their efforts to the old-fashioned method of setoning. All attempts to persuade them to inoculate were at first unavailing, but lately I have made much more progress, and have endeavoured to carry out the method in spite of vexatious delays, bad arrangements for the catching and securing of the cattle, wretched muddy, low-walled kraals, and the inevitable haggling of the owners over the paltry price of the vaccine. I have persisted in this work with a view to educating the native as to the value of this method, for once established I feel sure it will prove its value and save great losses in the future. The native habit of cutting up all carcases close to their huts and carrying the meat from kraal to kraal readily accounts for the extreme prevalence of this disease. To the best of my ability I have endeavoured to get them to cook the meat on the spot where the animal died, and either eat it there or move it only when cooked. I have also counselled burning of the veld all round where the carcase lay—it is useless to order burial and think that this will be done. I have personally inoculated 842 head almost entirely in herds in which an outbreak of the sickness has occurred."

Veterinary Surgeon Freer (Uitenhage) reports: "On the majority of farms, where this disease is endemic, farmers now systematically inoculate their calves, the results being very satisfactory. I have given numerous demonstrations of the methods of inoculation and also inoculated a large number of cattle during the year."

Veterinary Surgeon Kearney (Umtata) reports: "This disease has been playing up havoc. Most of the Europeans have made use of the Paris vaccine with very good results, though on one occasion the owner informed me that for some weeks subsequent to the second vaccination with Blacklegine, he continued to lose his calves, and lost as many as ten.

"I may say that here again the natives refuse to pay for the vaccine.

"It is noteworthy the number of fully grown stock which are contracting this disease, which points, I presume, to the greater virulence of the infection in these parts."

Veterinary Surgeon Paine (Mulder's Vlei) reports: "This disease broke out on one farm last August. All the in-contact animals were inoculated and no further cases occurred. As far as I am aware, this is the first outbreak that has occurred in this area, and no definite evidence with regard to the source of infection was obtainable."

Veterinary Surgeon Hutchence (Kokstad) reports: "This disease has been very prevalent throughout the whole of my area, and has been causing the death of stock the whole of the year; cattle have been dying from three months old to eight years old transport oxen. Farmers and natives also have realised the benefit of preventive inoculation and there have been a great many inoculated."

Tuberculosis. In my report for 1908 I pointed out that, as infection in outside districts was probably in all cases due to animals coming from the Cape division or imported over-sea, the best course to adopt would be the systematic testing of all cattle in the Cape Division. No such testing has, however, yet been carried out owing to the lack of funds for the purpose, but I am still of opinion that the sooner the work is done the better, as from the results of the testing done up to the present we find that the disease has yet not gained any considerable hold outside that Division.

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I would like to point out that although the percentage of infected animals in the Cape Division only works out at 2·42 per cent. (table given) this must not be taken as the average for the Division, as the large majority of the cattle so tested do not actually come from the Cape Division itself but are brought in (mostly from Malmesbury) by dealers for their own convenience in regard to the application of the Tuberculin test. So far as the Cape Division is concerned, I am convinced that the percentage of infected animals would work out at a very much higher rate, very probably at 20 per cent. to 30 per cent., at any rate amongst the dairy stock.

The early eradication of this disease would be not only for the benefit of our dairy herds, etc., but is essential in view of the not distant meat export trade by which the Colony must get rid of its annual surplus of cattle. The European authorities are now paying much greater attention to the state of health amongst cattle in countries from which carcases are imported and it would be greatly to our advantage if we could prove to our probable customers that tuberculosis did not exist amongst our herds.

Veterinary Surgeon Paine (Mulder's Vlei) reports:—"Whilst testing herds in this area I have been particularly impressed by the relationship between the use of open cowsheds and the rate at which the disease spreads in a herd. In several cases I have tested herds upon farms where such sheds are in use, and find that as a rule the disease has not shown the same tendency to spread as in the case of closed sheds. Of course it can readily be understood that in an open shed the air is purer, and the sun has an opportunity of destroying the causal agent. I feel that this point has in the past been overlooked in this country, the European closed shed has been considered our model building, but particularly after the results of recent experimental work bearing upon the relationship between milk yield and the external temperature we can now consider the open lean-to shed rather the ideal shed even for the dairy farmer."

Strangles.—This disease, which was so prevalent in 1908, was rarely met with in any part of the Colony during last year. When it did occur it was of a very much milder type than before.

East Coast Fever.—In view of our border being threatened by the persistent advance of East Coast Coast Fever from the Natal side, it was deemed necessary during the year to station veterinary surgeons at Umzimkulu and Bizana in order that should the disease unfortunately gain entrance into our Colony, we might, by the speedy discovery of the cases, be in a position to deal with an outbreak before it became too widespread. Microscopic slides have been widely distributed amongst the Headmen and farmers along the border, and they have been advised how to take blood smears from animals dying of unknown diseases. An average of from 30 to 40 slides have been microscopically examined each month.

Besides these precautions, two stock inspectors have been attached to each veterinary surgeon, these Inspectors being continually visiting native and other herds with a view to ascertaining whether there was any concealment of disease and also to investigate any reported cases of cattle sickness.

Suspected Rabies. Veterinary Surgeon Jowett (Cape Town) reports: 'One suspected case of this disease was reported during the month of December. The carcase was submitted for examination soon after the slaughter of the suspected dog. On sectioning certain portions of the brain I failed to find the bodies and lesions peculiar to this malady and the inoculation of experimental animals (rabbits) subsequently verified this negative finding."

Biliary Fever in Dogs. Veterinary Surgeon Jowett (Cape Town) reports: "The 'Trypan Blue' treatment proved efficacious and was fully reported upon in the *Agricultural Journal* issued by this Department."

Ostrich Castration. Twenty-two public demonstrations of the operation for the castration of ostriches were conducted by the veterinary staff last year in fifteen different districts, viz., Alexandria, Adelaide, Britstown Bathurst, Colesberg, Cradock, George, Graaff Reinet, Grahamstown, Jansenville, Knysna, Oudtshoorn, Somerset East, Uniondale, and Venterstad. The increased demand for these demonstrations being no doubt due to the fact that ostrich owners are beginning to realise the importance of breeding only from selected birds.

Outside of the above, quite a considerable number of birds must have been treated during the year by farmers themselves, as there was a very fair attendance of farmers at these demonstrations in the majority of cases, and many of them were apparently satisfied as to the desirability of the treatment and of their ability to carry out the operation on their own stock.

Diseases of Fowls and other birds. During the year 53 carcases of fowls were submitted to this office for post-mortem and microscopical examination, and reports of the results were duly transmitted to the owners, with advice as to the curative or preventive treatment to be adopted.

Veterinary Surgeon Jowett (Cape Town) reports: "Regarding the diseases of fowls and other birds, 'Warts on the head,' technically known as "Contagious Epithelioma," was fully reported upon in the *Agricultural Journal* during the early part of the year. This disease is quite common in the Cape Peninsula. Fowl cholera is also by no means rare. Another malady, a catarrhal enteritis, due to a microscopic organism, is also rather frequently met with. Owners of fowls seem to pay all too little attention to the various animal parasites which infest their charges; this refers not only to the external parasites such as fleas, lice and ticks (the so-called "Tampan," which undoubtedly does much damage), but also to the various intestinal parasites ('worms') which one finds exceedingly common amongst birds submitted for examination. Some of these last mentioned, it is true, seem to exert but little harmful effect on their host—that is, of course, provided they are but scantily present. In many instances, however, when conducting examinations on dead birds, one is astounded at the enormous numbers of 'worms' present in the intestines. These, by robbing the host of nourishment, and in other ways, must do much harm. In their own interests, owners of birds should, I think, adopt measures to eradicate these pests so far as possible."

The value of live stock exported oversea from Cape Colony during 1909 is given as £39,613, of which £16,564 is set against 531 horses.

J. D. Borthwick, Chief Veterinary Surgeon.

Argentina and Great Britain.—The Cattle Question.

Buenos Aires, Aug. 5.

The Minister of Agriculture, in a note to Parliament replies to the inquiries of a Deputy regarding the closing of Argentine ports to English cattle. He explains that this measure was taken owing to the existence of aphthous fever in Yorkshire, and points out that cattle from Ireland and Scotland are not excluded from Argentina. He further expresses the hope that the attitude of the Argentine Government will influence the mind of the British Government in a sense favourable to the re-opening of British ports to Argentine cattle.—*The Times.*

DISEASES OF ANIMALS ACTS 1894 TO 1903, SUMMARY OF RETURNS.

Period.	Anthrax.		Foot-and-Mouth Disease.		Glanders (including Farcy)		Counties Affected	Sheep Scab.	Swine Fever.	
	Out-breaks	Ani-mals.	Out-breaks	Ani-mals.	Out-breaks	Ani-mals.	Animals Attacked	Out-breaks	Out-breaks.	Slaugh-tered *
GT. BRITAIN. Week ended Aug. 6	19	22	...	...	8	56		2	17	185
Corresponding week in 1909 ...	23	27			8	16		...	26	218
Corresponding week in 1908 ...	11	12			8	74	Essex 1	3	24	250
Corresponding week in 1907 ...	20	28			11	29	London 14	1	55	295
Total for 32 weeks, 1910	925	1121	2	15	227	711	Middlesex 1 Monm'th 38 Warwick 2	331	927	8424
Corresponding period in 1909 ...	848	1130			354	1310		464	1169	10404
Corresponding period in 1908 ...	709	952	3	112	513	1632		636	1397	7664
Corresponding period in 1907 ...	702	930			579	1344		408	1670	7806

Board of Agriculture and Fisheries, Aug. 9, 1910.

	Parasitic Mange (outbreaks)		
IRELAND. Week ended July 30	...	3	2	73
Corresponding Week in 1909 ...	1	...	2	11
Corresponding Week in 1908 ...	...	...	2	9
Corresponding Week in 1907 ...	...	2	2	5
Total for 31 weeks, 1910 ...	43	343	67	1631
Corresponding period in 1909 ...	62	305	75	1322
Corresponding period in 1908 ...	26	271	126	2627
Corresponding period in 1907 ...	57	187	86	1340

Department of Agriculture and Technical Instruction for Ireland, (Veterinary Branch), Dublin, Aug. 3, 1910

NOTE.—The figures for the Current Year are approximate only. * As Diseased or Exposed to Infection

FOOT-AND-MOUTH DISEASE IN THE UNITED STATES OF AMERICA.

A detailed account has now been published by the United States Department of Agriculture of the investigations made into the origin of an outbreak of foot-and-mooth disease, and as the matter is one of considerable interest, it may be useful to place on record in this country the history given in the circular, No. 147, of the Bureau of Animal Industry, issued by the Department on June 16th, 1909.

The investigations were carried out by Dr. John R. Mohler, Chief of the Pathological Division of the Bureau, and Dr. Milton J. Rosenau, Director of the Hygienic Laboratory of the United States Public Health and Marine-Hospital Service. Their report deals with the nature and characteristics of foot-and-mouth disease, which although primarily and principally a disease of cattle, is casually a disease of man, and proceeds to give the following history of the outbreaks of the disease in 1908 and in 1902 and 1903:—

On October 26th, 1908, two carloads of cattle infected with or exposed to foot-and-mouth disease were sent from the stock yard at East Buffalo, N.Y., to Watsontown and Danville, Pa, respectively, from which points the disease was distributed to nine separate farms. It was upon these farms that the disease was brought to the attention of Dr. Leonard Pearson, State veterinarian of Pennsylvania, who in turn notified the United States Department of Agriculture on November 10th, and the diagnosis was confirmed on November 11th by Dr. A. D. Melvin, Chief of the Bureau of Animal Industry, and Drs. Rice P. Steddom and John R. Mohler, chiefs, respectively, of the Inspection and Pathological divisions of the Bureau.

An endeavour was at once made to trace the disease from the affected cattle back to the point of origin, but at that time it was impossible to obtain any definite clue regarding the source of the infection which would lead beyond the Buffalo stock yards. The only information which seemed at all significant was the fact that five bulls in the carload lot which went to Watsontown and two bulls in the car which went to Danville originated in the shipment of Mr. J. Jackson, living in the central portion of the State of Michigan. In order that this clue should be run down as quickly as possible, an inspector was at once detailed to look up the origin of this shipment, while other inspectors at the same time were sent to points in Canada, Ohio, New York, and Indiana for the purpose of investigating the condition of the cattle remaining at the farms where originated the balance of the cattle in the two carload lots which went to Watsontown and Danville from Buffalo. Reports from all these inspectors were duly received and proved to be entirely negative.

Subsequently (on Nov. 22) a suggestive telegram was received from the Bureau of Animal Industry's inspector in charge at Detroit, Mich., and another telegram was received from a local veterinarian in the same city stating that a mild type of foot-and-mouth disease was prevailing on several farms in that vicinity. This diagnosis was confirmed on the following day, and it developed that among the animals infected with foot-and-mouth disease were twenty-one heifers which had previously been used by Manufacturer A. for the production of vaccine virus. This fact caused Secretary of Agriculture James Wilson and Doctor Melvin, both of whom had

gone to Detroit to make a personal investigation of the outbreak, to suspect the contamination of the vaccine material nsed; and inasmuch as the United States Public Health and Marine-Hospital Service, under the Act of Congress of July 1st, 1902, is charged with the supervision of biological products used in the prevention and treatment of diseases of man, the Secretary requested the co-operation of that Service in an investigation, which was carried out by the writers of this paper. The character of the lesions in the mouths and on the feet of the above-mentioned animals indicated that they were in the fourth stage of the disease, or the stage of healing, and that these lesions were older and more nearly healed than those found in any other centre where the infection had been observed.

For these reasons, together with the fact that the outbreaks of foot-and-mouth disease in 1902 and 1903 were quite closely associated with the vaccinated cattle of the New England Vaccine Company's establishment and Dr. E. E. Tyzzer's experimental work with vaccine at a farm at Wakefield, Mass., it was deemed advisable to make a thorough investigation of the movements of the twenty-one vaccinated cattle above referred to, and to ascertain if possible what connection, if any, the use of these cattle for the production of vaccine virus by Manufacturer A. had with the origin of the 1908 outbreak of foot-and-mouth disease.

The outbreak of foot-and-mouth disease in Massachusetts during 1902 started in Chelsea, and the place where it was thought to have originated was the farm of Mr. Owen Clark, who had a contract with Dr. C., of the New England Vaccine Company, to rent calves for the propagation of vaccine virus. These calves were later returned to Mr. Clark after the vaccine virus had been secured. Doctor C. occasionally obtained seed vaccine from outside sources to either strengthen or improve his product. He admitted having obtained a foreign strain, presumably of Japanese origin, through Manufacturer B, during the summer of 1902, while the outbreak in Mr. Clark's herd occurred in August of the same year. Although suspicion was directed to this source of origin of the 1902 outbreak, it was finally concluded that, as Mr. Clark's place was so near to Massachusetts Bay and the docks, there was some likelihood of the contagion having reached his farm through infected hay, straw, fodder, or other material from the trans-Atlantic steamers, and this explanation was quite generally accepted in lieu of more definite evidence.

Later, an independent outbreak of foot-and-mouth disease was started at Wakefield, Mass., in August, 1903, by Dr. E. E. Tyzzer, of Harvard Medical School, who was doing some experimental work in the study of vaccine bodies. He inoculated some calves on his father's farm with seed vaccine obtained from Doctor K. It was said that this virus also came from Japan, through Manufacturer B. As a result foot-and-mouth disease developed not only in the inoculated calves, but in the milch cows on the farm as well. The State of Massachussetts and the Bureau of Animal Industry subsequently had Dr. Tyzzer repeat the experiments at an isolated stable in Wakefield that was rented for the purpose, and foot-and-mouth disease was again produced in this second series of inoculated cattle by the use of the same sample of vaccine virus.

There is no question that Tyzzer succeeded in producing foot-and-mouth disease as a result of inoculation of vaccine virus which in some way had become contaminated with the virus of foot-and-mouth disease, and in his report to Doctor Salmon, then Chief of the Bureau of Animal Industry, he wrote:

"The mouth lesions and the vesicles occurring on the udders of the experiment animals presented a special type of necrosis, and represent a process entirely distinct from vaccinia. . . . . Two cows having passed through the eruptive disease described in this report were not immune to vaccinia, as has been shown by the inoculation of vaccine lymph and the subsequent microscopical study of the lesions."

Drs. U. G. Houck and G. A. Johnson, who had been designated by the Bureau of Animal Industry to make clinical notes on these cases, state in their report that "the vaccine lymph used on both herds was responsible for the conditions that developed in them; that is, the production of a contagious disease, which, if it is not foot-and-mouth disease, the symptoms and lesions defy a differential diagnosis."

However, there have always been an element of doubt and some contention with reference to the manner in which this vaccine became contaminated. The possibility that this vaccine virus, which had been removed from its original container, was contaminated by placing it in an ice chest with specimens of foot-and-mouth disease at once suggested itself to Doctor Salmon. This, however, does not seem at all certain, particularly in the light of onr present knowledge, although this view was apparently strengthened by the fact that four different series of experiments conducted at that time with vaccine obtained from the original source failed to produce any lesions recognised by the investigators as due to foot-and-mouth disease. The coincidence of having this outbreak occur in the quarantined section only two or three months after the last cases of the previous outbreak had been eradicated, threw further doubt upon the contamination of the vaccine virus.

With these facts in mind, and with the knowledge that the twenty-one vaccinated cattle of Manufacturer A. were among the first to show foot-and-mouth disease in the present outbreak, the writers proceeded to the laboratories of this manufacturer, arriving Nov. 30th, 1908. The movements of these cattle were at once investigated.

These cattle were purchased in September by Shaw Brothers, who had a contract with Manufacturer A. to furnish the animals for vaccination purposes. After they had been vaccinated and the vaccine pulp removed, the cattle, as was the custom, were returned to Shaw Brothers, who received a rental price for each animal and subsequently disposed of them to the public. In this particular instance the animals were vaccinated on Sept. 23rd and Oct. 6th, and turned back to Shaw Brothers Oct. 16th, on which date they were driven to the Haley Commission Company's pens in the Detroit stock yards, watered and fed for two hours, and then taken to a town 15 miles distant, where they were dispersed. The appearance of foot-and-mouth disease was observed on Oct. 18 by Mr. I. W. Shaw, who purchased ten of these animals, and by other purchasers about the same time.

In obtaining a record of all shipments that subsequently passed through the pens of the Haley Commission Company, which presumably became infected by the twenty-one vaccinated cattle, it was quite interesting to learn that the healthy cattle, previously referred to as having been collected by Mr. J. Jackson, were shipped to the Haley Commission Company on October 20 and all but thirty-two sold. The latter animals were re-shipped to East Buffalo on October 23, and evidently carried the contagion from the infected pens of the Haley Commission Company to the Buffalo yards, and thence by means of the seven bulls in the consignment to Watsontown and Danville, Pa., as already mentioned. All subsequent centres of infection have been directly or indirectly traced to the twenty-one vaccinated animals as the original source of infection. All other shipments which passed through the Haley Commission Company's pens for six days previous to the receipt of the vaccinated cattle have been traced to their destinations with negative results, while negative results have also fol-

lowed the investigation of places whence these twenty-one cattle came before they were taken to the vaccine stables of Manufacturer A.

The likelihood of the infection of these cattle through vaccination at the latter's plant having been indicated, three separate strains of vaccine virus which had been used by the firm during 1908 were secured. The experiments performed with these three lots of vaccine virus are here briefly recorded."

The account given of the experiments conducted with the seed vaccines is too long for reproduction in this report, but it may be briefly stated that lesions typical of foot-and-mouth disease were, through the medium of the suspected vaccine, produced in a cow and also in a calf, and that the disease was transmitted from these animals by natural modes of infection to another cow and also to a calf. It became, therefore, evident to the investigators that the vaccine virus which had been imported into the United States from abroad was contaminated with the virus of foot-and-mouth disease. The history of the particular vaccine showed that it was of a Japanese strain, imported for the purpose of improving the standard of vaccine produced by the manufacturers concerned. It was shown that the practice of one of the importing firms was to kill the calves after taking the vaccine virus, but, unfortunately, vaccine of the same strain had been procured by another firm whose practice was to rent the calves and place them again on the market a short time after the vaccine material had been taken, and in this way it is believed that the disease was spread to animals outside the manufacturer's establishment.

The following are the conclusions arrived at by the investigators :—

CONCLUSIONS.

(1) The recent outbreak of foot-and-mouth disease in this country (*i.e.*, the United States of America) started from some calves used to propagate vaccine virus.

(2) The vaccine virus used on these calves has been proved to contain the infection of foot-and-mouth disease.

(3) The outbreaks of foot-and-mouth disease in 1902-3 probably had a similar origin.

(4) It is probable that the foot-and-mouth infection got into the vaccine virus in some foreign country where the disease prevailed, and was introduced into the United States through the importation of this contaminated vaccine.

(5) The symbiosis between the infections of vaccinia and foot and-mouth disease is specially interesting. Animals vaccinated with the mixed virus, as a rule, show only the lesions of one of these diseases, namely, vaccinia; nevertheless the infectious principle of foot-and-mouth disease remains in the vaccinal eruption.

These conclusions, and the evidence upon which they are based, have been carefully considered by the Veterinary Officers of the Board, who agree with them, and in consequence an Order is being prepared, in consultation with the Local Government Board and the Home Office, designed to guard against the risk of any simllar occurrence in this country. The Order aims at bringing all experimental inoculations of animals with the living virus of certain highly dangerous diseases under the effective control of the Board.—*Annual Report, 1909, The Board of Agriculture.*

COST OF ROADS.—Mr. Pedley, Chairman of the Main Roads Committee, stated at a meeting of the Cheshire County Council last week that the cost of rural main roads in the county averaged £110 per mile, as compared with £66 when the county council took over the roads. It had risen to £80 by 1906, and had gone up to the present figure since the advent of motor traffic.

MILK AND TUBERCULOSIS.

[Extract from Annual Report on the Health of the City of Manchester.]

The duties I was appointed to carry out are—(1) The inspection of the Manchester cowsheds and dairies as to their compliance with the Manchester regulations made under the Dairies, Cowsheds, and Milkshops Order; (2) to act as Veterinary Inspector in the working of the Milk Clauses contained in the Manchester General Powers Act, 1899.

The cowsheds number 235 on 121 farmsteads, and have a housing capacity of about 2,000 cows, though the actual number so housed in the City cowsheds at one time falls somewhat short of that number.

In the course of the regular inspection of the City farms, 392 visits have been paid and 710 inspections of cowsheds carried out.

During the year the districts of Gorton and Levenshulme have been added to the City boundaries, and now come within the area of systematic inspection. The amount of ground to be covered having now become very large, and the farms being situated for the most part near the confines of the City, and not always easy of access, it is becoming difficult, if not impossible, to keep up the requisite amount of inspection of these City farms. If a high standard is to be maintained, which can only be done by repeated inspection and persistent effort on the part of the inspecting officer, it is to be hoped that it will be found possible to provide some assistance to carry out the work.

The total number of inspections made of the City cows during the year was 7,267. The number of cows housed within the City boundaries is about 2,000, the exact figure at the last count being 1,986. The full accommodation is not used all the year round.

No progress has been made during the year in securing tuberculosis-free farms, and however desirable such a policy may be, it seems impossible to make any progress until something in the shape of a certificate is given by the Sanitary Authority, which may be used as an advertisement to secure some monetary return for the outlay and trouble to which the farmer has been put in carrying out the necessary operations provided for in the Schedule.

During the year 645 samples of milk have been collected by the Food and Drugs Inspectors in connection with tuberculosis. Of this number, 623 were taken at the railway stations, and the remainder were taken from carts coming in by road. The number of farmers represented in the total is 535. The average amount of tuberculous milk sent in by these 535 farmers was 5·79 per cent.

In response to the circulars addressed to the farmers asking for particulars of the number of cows on each farm, 453 replies were received, and 82 sent no reply. The total number of cows kept on the farms of those who sent the particulars asked for was 9,020, giving an average of nearly 20 cows per farm.

The decrease in the amount of tuberculous milk sent in from Cheshire is particularly notable and gratifying, and reflects very great credit upon the farmers in that county. The influence for good of the work done by the staffs of the County and Local Councils must not be lost sight of. The forward and enlightened policy of the Cheshire Milk Producers' Association in strongly urging upon its members the extreme importance of constant care and vigilant supervision of their herds is also worthy of commendation, and can only make for the ultimate benefit of the whole dairy industry. Nothing will do more to increase the consumption of milk in the towns than for the consumer to feel confidence in the article which is sent in.

From year to year more intelligent interest is being taken by the farmers in the whole question of the prevention of disease, and I am able to testify to the fact that with few exceptions most of the farmers with whom I come in contact are quite alive to the situation, and are willing to listen and to learn, if not to act immediately.

This educational section forms no small part of the work of inspection. Inspection without instruction would be practically useless. For some years I have realised how very essential it is that no trouble should be spared in giving as much information as to the nature of the diseases met with, with particular reference to contagious diseases, their mode of spread, and their prevention. There is no doubt that the task is at times apparently a very hopeless one, but even a little information, given in non-technical terms, is likely to be of benefit.

It is a surprising fact that, seeing how closely concerned farmers are with the legislation available for the supervision of the milk supply, only a small proportion of the individuals affected will take the trouble to read any printed matter which is sent to them. Repeatedly when visiting farms in the country districts I have questioned farmers as to whether they had made themselves acquainted with the contents of the circulars which had been sent to them, and have been informed that they remembered some papers coming, but had not troubled to read them. It should, of course, be remembered that such replies are sometimes given in furtherance of the plea that they have been entirely in ignorance of any offence having been committed. I merely refer to this aspect of the administrative work to suggest that the County Councils and other bodies concerned have still plenty of scope for extending practical information of real educational and financial value to the farmers, but such information must be of such a character as to be easily understood by the individuals interested.

I am convinced that a very great deal of the success attending the administration has been due to the fact that no trouble has been spared to render information wherever possible. The pamphlets compiled by Dr. Niven have been of the very greatest value, and have been freely utilised for this purpose.

I have referred in previous reports to the general and systematic disinfection of cowsheds, and need make no apology for referring to it again. It has been a special branch of the instruction given, and one upon which I have laid great stress. It may be of value if I refer to the experience of one farmer in this direction. For years the losses from tuberculosis had been of such magnitude as to make him fearful of attempting to rear any cattle upon his farm. Incidentally many of his cows developed tuberculosis of the udder. His buildings are bad, but his landlord will not or cannot do anything to improve them. They are kept as clean as it is humanly possible to keep such structures.

Some four years ago he decided to take my advice, and started to systematically disinfect the whole of his animal habitations, certainly not less than once in two months. From time to time he has reported progress to me, and naturally he found that he was not going to get rid of his losses all at once. But a short time ago he stated that for the first time since he had started farming he had not lost a single animal from tuberculosis for twelve months, and he questioned me further as to whether I thought that the general disinfecting had anything to do with his comparative freedom from contagious abortion.

The experience given above is not an isolated instance by any means, and I could quote others where results almost as good have been obtained, and I am convinced that if compulsory clauses requiring efficient periodical disinfection were included in any future legislation it would be of the utmost value. Great persistence is required in the individual efforts to diminish the incidence of tuberculosis.

Included in the work of the year was the inspection of the sources of supply to a large dairy company, a great quantity of whose milk is despatched to a city other than Manchester.

It is only possible in a limited space such as is at my disposal to refer briefly to this piece of work, which was of considerable magnitude, and having been carried out in the summer months the general conditions prevailing at the farms visited were, or should have been, at their best; the results obtained are therefore all the more striking.

The summarised results of this piece of work are as follows:—The total number of farms visited was 136; of this number I found 6 to be clean, 52 were fairly clean, and 78 were dirty.

At five farms out of the gross total of 136 farms there was satisfactory provision for the storage of manure. At 12 other farms the provision made was of a less satisfactory character, but was nevertheless fairly good, while on the remaining 116 farms the manure stead was either entirely absent or quite unsatisfactory.

The total number of cowsheds inspected was 343; of these, 10 were clean, 147 fairly clean, and the remainder dirty.

I should here state that the standard of cleanliness expected was not such as might obtain in a well-kept dwelling house, but such as might reasonably be required in any farm in which a reasonable amount of supervision was exercised. The figures are then all the more striking.

The lighting of 78 cowsheds was satisfactory, the remaining 265 being either badly lighted or not lighted at all. Eighty-eight cowsheds were sufficiently ventilated, the remaining 255 being badly ventilated.

The drainage of 151 cowsheds was satisfactory, while in 192 cowsheds it was not.

In 201 cowsheds the cubic area per cow was sufficient; in 142 it was inadequate. This is somewhat contrary to usual inspection results, and while it was found that the housing was very bad, there was little overcrowding.

Finally, the total number of cows examined was 3,019. The total number of cows found to be suffering from tuberculosis of the udder was 11. Of these, 7 were proved by bacteriological examination. Two were "dry" cows, in which the diagnosis was confirmed by post-mortem examination. An additional two cows were found to be suffering from undoubted tuberculosis of the udder, but no material being obtainable the diagnosis was not bacteriologically confirmed. In one of these cases a post-mortem examination was subsequently carried out, and ample evidence of marked tuberculosis was found.

The number of cows suffering from tuberculosis of the udder found in this piece of inspection work was comparatively small, but this is to a great extent accounted for by the fact that, as soon as it became known that the farms were being visited, large numbers of suspected animals were sent into the local auction market every week, and disposed of to individuals who evidently had no difficulty in disposing of this class of cattle.

The chief purchasers of these emaciated animals were four individuals who were quite well known. Prices for actual "wasters" ranged from 10s. to 35s.; in addition, there was a brisk trade in worn-out old cows at prices ranging from £2 10s. to £5 each.

On a certain Wednesday morning I watched the business carried on by one auctioneer, and took careful note of the first 17 animals sold. Of these, 14 were certainly suffering from advanced tuberculosis, 9 of them having undoubted disease of the udder. A fortnight later, of the first 15 animals sold 11 were undoubtedly tuberculous, 6 having marked tuberculosis of the udder. This is only what I saw in one auctioneer's section of the

market. I should also say that what I have described took place at some considerable distance from Manchester, but it emphasises one of the points in connection with the suppression of the "slink" trade, which is extremely difficult to control so long as such animals are admitted into markets and fairs without hindrance or comment. No hardship would be inflicted if such creatures, many of which can only be brought to auction by cart, and others arriving in a state of exhaustion, were peremptorily seized and condemned to slaughter by the nearest "knacker."

There can be no doubt that if the inspection only resulted in the expulsion of the diseased animals I have described from the herds, a certain amount of good would be done.

Wholesale inspections of the above character should be carried out as far as is possible in the winter months, when the cattle are housed, and it is possible to see what are the actual conditions under which cattle are living during those periods of the year when they are not at liberty. It would be possible then also to examine a much larger number in a day.

The actual number of cows found during the year to be suffering from tuberculosis of the udder was 31. Of this number, as already stated, 11 were found in connection with one supply; of these, 5 were slaughtered in my presence, the carcases all being unfit for foot. The remaining 6 were disposed or otherwise.

In the remainder of the work 20 cows were found. Of these, 19 were slaughtered either in my presence or I saw the carcase soon after. In 17 cases the entire carcase was found to be unfit for food; in one case part of the carcase only was passed, and in the remaining case the entire carcase was found to be fit for food. In one case the ultimate disposal of the cow could not be ascertained, beyond the fact that she had been sold.

One farmer was prosecuted during the year for having failed to notify to the Medical Officer of Health the presence in his herd of a cow suffering from tuberculosis of the udder. A fine of 20s. and costs and £1 1s. extra costs was imposed. A prohibitionary order was also made upon the same farmer to cease sending his milk to the city, but the farmer having made arrangements to carry out the requisite alteration of the cowsheds, the order will no doubt be removed on the completion of the undertaking.

Tuberculin Test.

The complete table showing since the commencement the work of keeping a large herd free from tuberculosis, by means of the tuberculin test, is again inserted. The results obtained have been most satisfactory, and reflect great credit upon the farmer from whose farm the milk is supplied to the various hospitals, Monsall, Clayton, and Baguley Sanatorium.

It may be of some interest to mention the fact that since the commencement, some four years ago, of rearing stock from tuberculosis-free animals under stringent conditions, no animal so reared has re-acted to tuberculin.

J. W. Brittlebank, M.R.C.V.S., D.V.S.M.

Cruelty Prosecution at Blackboys.

William Hird, farmer, of Pounceley Farm, Blackboys, Framfield, was summoned at the Uckfield Petty Sessions, for causing a bull to be cruelly ill-treated on divers dates between the 9th April and the 7th July, at Framfield.

Mr. E. T. Wellstead, of Newhaven, prosecuted on behalf of the R.S.P.C.A., and defendant pleaded not guilty.

P.C. William Stevens said he visited Pouncely Farm on the 1st July in company with P.S. Smith. They were on the road outside the farm when they heard groans, and upon entering the yard they found the bull lying down in an open shed. It was groaning and appeared to be in great pain. They tried to make it get up, and it eventually did so. It was very thin, the bones almost appearing through the skin, and the right eye had sunk into the head, and was discharging. There was a lump on either side of the throat, and when he touched them the bull flinched. There was also a swelling right under the throat. Some coarse field grass was in the manger. Witness visited the farm the next day about 1.30 p.m., and the grass in the manger seemed to be the same as on the previous occasion. He made another visit on the 7th July in company with the Society's Inspector. The bull was in a worse state than before. When it got up it fell down again. Twenty minutes later they saw the defendant, who refused to give his name to the inspector. He, however, told Inspector Maver he knew the bull was suffering from a diseased jaw, and that he had not called in anyone to see it.

Cross-examined, he could not say whether the chain was on a runner. He would not swear it was not, but it seemed to be tied to a post. It was night-time when he saw the bull.

James Jenner, who was in the employ of the defendant until the 9th April, said Mr. Hird had the bull at the time he left his service. It was then in good condition, but when he saw it on the 26th June it was in a worse state. Witness left defendant's employ on his own account.

Inspector Maver, R.S.P.C.A., said that on the 7th July, in company with P.C. Stevens, he visited the defendant's farm, and in a shed saw the bull. It was in a very poor, weak, and emaciated condition; nothing but a frame. He tried to get it up, but after it had partially risen it fell down again. Witness corroborated P.C. Stevens' statement regarding the condition of the animal's throat and jaw, and said the chain was rubbing against the throat, causing the bull pain. There was a discharge from its right eye. A quantity of rough green grass was thrown down in front of the animal, which witness should say had been there about a day.

In the course of cross-examining the witness, defendant said the chain was on a roller and was not too short. In answer to defendant, the Inspector said he did tell him he was not giving the bull proper food, but did not accuse him of withholding food.

Mr. John Cecil Munby, M.R.C.V.S., of Lewes, said he visited the farm on the 9th July, when he found the partially-skinned carcase of a bull. It was very much emaciated, and upon examining the head he found the animal had suffered from actinomycosis. The disease was evidently of some months' standing. In its early stages it was easily curable, and could even be cured at a later period. The animal's emaciated condition was due to improper feeding, which also caused it additional pain. The shed in which it was kept was not a proper place to keep it under the circumstances, and it ought never to have been tied up at all.

Cross-examined, witness would not swear that the defendant never gave the bull short food. It might have had an accident which caused the loss of the eye, but the condition of the jaws and throat were not due in any way to an accident.

Re-examined, he saw some food which the defendant said was of the same kind he had given the bull.

Defendant said he had witnesses to prove that the bull met with an accident two years ago in Surrey. He was quite unaware it was affected with the glands or anything else. With respect to the feeding of the bull he might say that he had given it short food in addition to grass.

Replying to the Chairman, Mr. Munby said the disease from which the bull suffered was attributable to a species

of fungus which was found in certain foods, mostly barley and barley straw, pieces of which penetrated the tongue or jaw and caused abscesses.

The Bench considered their decision in private, and subsequently the Chairman intimated that they had decided to convict, but before fixing the penalty they wanted to know the position of the defendant.

P.S. Stevens said Mr. Hird was a large farmer, but he could not say what was the extent of the acreage. He understood he kept a cowman and carter.

Superintendent Criddle: According to our information he has about 60 acres.

Defendant was fined £2, and ordered to pay £1 towards the costs.

Observations of Mercurial Intoxication.

Dr. Cadéac recently read a paper on mercurialism before the National Society of Medicine of Lyons. His experiments were carried out chiefly on dogs and calves, and from them he was able to furnish the Society with several interesting observations upon the effects produced by mercury given in doses sufficient to produce toxic effects. One of the earliest symptoms of mercurialism is the appearance of stomatitis, but the author points out that there is no real relation between this symptom and the degree of intoxication. The stomatitis is a transitory phenomenon which, after being cured, will not reappear, however much of the drug be given Simple irritants such as ammonia produce ulceration of the mouth by actual contact. Mercury, however, produces stomatitis indirectly. The resistance of the buccal tissues to bacterial invasion is lowered at first by the ingestion of the drug, with the result that the flora of the oral cavity proliferate unchecked and cause stomatitis. This lowering is, however, quite transitory, a sort of negative phase, and is followed by an increase in the resisting powers of the tissues. It is, therefore, evident that there can be no relation between stomatitis and the degree of mercurial intoxication. Moreover, the action of the mercury is not confined to the mouth, for the whole organism is affected in the same way, being at first deprived of its normal resisting powers to organisms and subsequently having these powers greatly increased.

Personal.

ELPHICK—BUDGEN.—On the 9th Aug. at St. Luke's Church, Maidenhead, by the Rev. Frank Jones, B.A., Dean of the College of St. Luke's, London, assisted by the Rev. H. G. J. Mears, M.A., Vicar of St. Luke's Maidenhead, George J. F. Elphick, late of Singapore, Straits Settlements, eldest son of the late J. E. Elphick, M.R.C.V.S., late of the 10th Hussars and of Singapore, to Ethel, second daughter of John Budgen, J.P., of "Shirley" Maidenhead.

ARMY VETERINARY SERVICE.

Extract from *London Gazette*,

INDIA OFFICE, August 5.

INDIAN CIVIL VETERINARY DEPARTMENT.

The King has approved of the following promotions of officers of the Indian Civil Veterinary Department :—

Major to be Lieut.-Col. — J. Farmer, F.R.C.V.S. Dated Feb. 28.

Extract from *The Gazette*, Ceylon, July 15.

Mr. George William Sturgess to be Veterinary Officer, Ceylon Mounted Rifles, with the rank of Captain.

Capt. George William Sturgess, Veterinary Officer, Ceylon Mounted Rifles, to be Veterinary Officer, Ceylon Volunteer Force.

CORRESPONDENCE.

A HOPELESS "ROARER" MADE USEFUL.

Sir,

On the 4th and 5th July I was away from home and had occasion to hire a horse and trap. I remarked to the coachman what a wonderfully well bred horse he was driving, he said "if you had seen him three months ago you wouldn't have given £3 for him." He told me that at that time Prof. Hobday had operated on him. The horse prior to operation was a hopeless roarer, so much so, that he was quite useless.

I was sitting behind the horse for more than three hours; he pulled us along at the rate of eight or nine miles an hour, and after trotting at a good pace up a long hill, he only made a slight blowing sound, no more than one might expect from a horse 18 years old.

I made some enquiries later and found out that the coachman had in no way exaggerated this case. Taking into consideration the age and condition of animal prior to operation, I thought it worth while to record it, and the enormous benefit derived from the operation.—Yours faithfully,

PHILIP VINCENT, M.R.C.V.S.

Grays, Essex.

THE SO-CALLED CANINE NURSE.

Sir,

This individual is largely the production of London canine practitioners. Their functions, they largely proclaim, are similar to those of the human nurse, but in practice it does not appear that there is any real scope for such except, perhaps, in the West End of London.

The ultimate effect of the "training" or "course of lectures" enjoyed by the "nurse" is to produce nothing more nor less than another type of quack who establishes herself in some remote district in opposition to the local veterinary surgeon. She can, and does, advertise that she boards animals, and that she can nurse sick dogs and cats, been instructed by Mr. —— the canine surgeon. This is an advertisement which cannot be met by the local practitioner in any way, as he must not advertise at all. The canine surgeon gets the important and better paid work, and the nurse the rest, the local practitioner being left quite out in the cold.

Is it any use appealing to the better feelings of the prominent canine surgeons to "live and let live"?—Yours, etc.,

"ONE OF THE COMMON HERD."

"HUSK."

Sir,

Will some brother practitioner kindly give me the formula and doses for intra-tracheal injections for beasts with husk in the next issue of *The Record*.—Yours faithfully,

M.R.C.V.S.

A DISCLAIMER.

Sir,

I am in no way connected with, nor responsible for, the advertising matter which appeared in the last issue of *The Record*, under the heading of "Public Notices."—Yours truly,

JOHN HILL.

Town Hall, Llanelly, Aug. 8.

Original articles and reports should be written on one side of the paper only and authenticated by the names and addresses of the writers, not necessarily for publication.

Communications for the Editors to be addressed 20 Fulham Road, London, S.W.